

## *Claims*

1. A method for determining a transmission path of datagrams in an IP network from a source device to a destination device, said method comprising the steps of:

said source device receiving from a network manager station, a message for retrieving information related to the transmission path of datagrams to said destination device, said message comprising a destination address and a source address, said destination address being an IP address of the destination device, and said source address being an IP address of the network manager device; and

said source device sending a plurality of probe datagrams to a respective plurality of IP network devices along the transmission path to the destination device, each probe datagram comprising as destination address, the IP address of the destination device and as source address, the IP address of the network manager station, such that replies, if any, to said probe datagrams are sent back directly to the network manager station by the IP network device along the transmission path, bypassing said source device.

2. The method according to claim 1 wherein the step of sending a plurality of probe datagrams to a respective plurality of IP network devices, comprises the step of:

inserting a value in each probe datagram sent to an IP network device to cause the respective IP network device to reply to said network manager station.

3. The method according to claim 1 wherein the step of inserting a value in each probe datagram sent to a respective IP network device, comprises the step of:

inserting said value in the "time to live" (TTL) field of the IP header of each said probe datagram, said value being decremented by each IP network device along the transmission path.

4. The method according to claim 1 wherein said probe datagrams fully comply with a traceroute protocol except the source address in the IP header is replaced by the IP address of the network manager station.

5. The method according to claim 1 wherein said IP network devices are IP routers.

6. The method according to claim 1 wherein:

said destination device is a server station; and

said source device is a client station.

7. A computer program product for determining a transmission path of datagrams in an IP network from a source device to a destination device, said computer program product comprising:

a computer readable medium;

first program instructions, executable at a network managing station, to send to said source device a message to retrieve information related to the transmission path of datagrams to said destination device by sending a plurality of probe diagrams to a respective plurality of IP network devices along the transmission path to the destination device, each probe datagram comprising as destination address, an IP address of the destination device and as source address, an IP address of the network manager station, said message comprising a destination address and a source address, said destination address being the IP address of the destination device, and said source address being the IP address of the network manager device; and

second program instructions, executable at said network managing station, to receive replies, if any, to said probe datagrams, said replies being sent back directly to the network manager station by the respective IP network devices along the transmission path, bypassing said source device; and wherein

said first and second program instructions are recorded on said medium.

8. The computer program product according to claim 7 wherein the plurality of probe datagrams comprises respective values in a field to cause the respective IP network device to reply to said network manager station.

9. The computer program product according to claim 8 wherein the value in each probe datagram is a "time to live" (TTL) value in a TTL field, said value being decremented by each IP network device along the transmission path.

10. The computer program product according to claim 7 wherein said probe datagrams fully comply with a traceroute protocol except the source address in the IP header is replaced by the IP address of the network manager station.

11. The computer program according to claim 7 wherein said IP network devices are IP routers.

12. The computer program according to claim 7 wherein:

said destination device is a server station; and

said source device is a client station.

13. The computer program according to claim 7 further comprising:

third program instructions, executable in said network managing station, to determine a failure location in said transmission path based on said replies to respective probe datagrams, and absence of a reply to another one of said probe datagrams; and wherein said third program instructions are recorded on said medium.

14. A computer system for determining a transmission path of datagrams in an IP network from a source device to a destination device, said computer system comprising:

means for sending to said source device a message to retrieve information related to the transmission path of datagrams to said destination device by sending a plurality of probe diagrams to a respective plurality of IP network devices along the transmission path to the destination device, each probe datagram comprising as destination address, an IP address of the destination device and as source address, an IP address of said computer system, said message comprising a destination address and a source address, said destination address being the IP address of the destination device, and said source address being the IP address of said computer system; and

means for receiving replies, if any, to said probe datagrams, said replies being sent back directly to said computer system by the respective IP network devices along the transmission path, bypassing said source device; and

means for determining a failure location in said transmission path based on said replies to respective probe datagrams, and absence of a reply to another one of said probe datagrams.

15. The computer system according to claim 14 wherein the plurality of probe datagrams comprise respective values in a field to cause the respective IP network device to reply to said computer system.

16. The computer system according to claim 15 wherein the value in each probe datagram is a "time to live" (TTL) value in a TTL field, said value being decremented by each IP network device along the transmission path.

17. The computer system according to claim 14 wherein said probe datagrams fully comply with a traceroute protocol except the source address in the IP header is replaced by the IP address of the computer system.

18. The computer system according to claim 14 wherein said IP network devices are IP routers.

19. The computer system according to claim 14 wherein:

said destination device is a server station; and

said source device is a client station.